

REMARKS

Claims 66-173 are pending in the application. By this Preliminary Amendment, claims 1-10 and 12-65 have been canceled and new claims 66-173 have been added.

In the Official Action mailed October 4, 2002, claims 1-41 and 46-65 were rejected under 35 U.S.C. §102(b) as being anticipated by Tirpak (U.S. Patent No. 5,300,556). As claims 1-10 and 12-65 have been cancelled, this rejection is now moot. However, in an effort to expedite prosecution, Applicants provide the following remarks.

The presently claimed invention relates to a process for the emulsion synthesis of blocked (poly)isocyanates, to the emulsions thus obtained, to their use in order to make compositions which are useful for coating surfaces and to the coatings thus obtained. See specification at page 1, lines 4-7.

New claim 66, for example, defines a process for the preparation of an oil-in-water emulsion of blocked (poly)isocyanates, the process comprising conducting a one-step emulsion-and-blocking reaction by placing an isocyanate composition containing free isocyanate functions in contact with at least one blocking agent A in the presence of a surfactant B and an aqueous phase, said isocyanate composition being added gradually to a stock containing at least some of the aqueous phase and at least some of the blocking agent so that the content of free isocyanate functions is at most equal to two equivalents per kg in the isocyanate phase. Support for new claim 66 can be found at least at page 3, lines 17-19 , page 4, lines 9-13, page 6, lines 11-15 and page 36, line 30 of the specification.

Tirpak relates to an improved process for the preparation of aqueous dispersions containing both blocked (poly)isocyanates and polyhydroxyl compound. See Tirpak et al. at column 1, lines 11-15.

It is well established, that in order to demonstrate anticipation under §102(b), each element of the claim in issue must be found, either expressly described or under principles of inherency, in a single prior art reference. See Kalman v. Kimberly-Clark Corp., 218 USPQ 789 (Fed. Cir. 1983). That is not the case here.

Tirpak does not disclose or fairly suggest each feature of claim 66. In particular, the process of claim 66 is a process for the preparation of an oil-in-water emulsion of blocked (poly)isocyanates. In stark contrast, Tirpak fails to disclose or fairly suggest a one-step emulsion-and-blocking reaction. See Tirpak, for example, at column 4, lines 60-65, which indicates that the disclosed process includes separate emulsion and blocking steps. Accordingly, Applicants submit that the process of claim 66 and the claims depending therefrom are novel over Tirpak.

For at least these reasons, the invention of claim 66 is not anticipated by Tirpak.

Claims 1-44 and 46-65 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tirpak in view of Yasuda (EP 367667). As claims 1-10 and 12-65 have been cancelled, this rejection is now moot. However, in an effort to expedite prosecution of the application, Applicants provide the following remarks.

The combination of Tirpak and Yasuda does not render obvious the process of claim 66. In particular, Yasuda relates to a polyurethane resin containing at least one phosphonic

acid group and its use in a magnetic coating formulation and a magnetic recording medium.

See Yasuda at page 2, lines 1-2. Applicants submit that the combination of this coating formulation with that of Tirpak does not render obvious the claims of the present invention.

More specifically, new claim 66 defines a process conducted so that the content of free isocyanate functions is at most equal to two equivalents per kg in the isocyanate phase. Clearly, neither Tirpak nor Yasuda, alone or in combination, disclose or fairly suggest a method wherein the content of free isocyanate functions is equal to not more than 2 equivalents per kg in the isocyanate phase.

Additionally, with respect to the subject matter of claims 31-43, Applicants wish to point out that Yasuda discloses a dispersion of solid particles (i.e., a dispersion not an emulsion) within a binder prepared from: a phosphorus compound as a surfactant; an epoxy compound; a bifunctional isocyanate compound; and a polyfunctional hydroxyl compound. See Yasuda at page 2, line 50 to page 3, lin 34. In short, Yasuda discloses using a phosphorus-containing surfactant in a dispersion of solid particles wherein the continuous phase is the organic material (i.e. the "oil"), namely a polyurethane resin. See, for example, claim 1.

Also, Applicants submit that Tirpak discloses a dispersion of a blocked polyisocyanate composition with a surfactant having a cation or cationic group, carboxylate, sulphonate, ammonium or sulphonium. See Tirpak, for example, at column 4, lines 5-11, which discloses that the continuous phase is the aqueous phase. See, Tirpak at column 11, lines 14-16, which states "aqueous dispersion."

Thus, Applicants submit that no person of ordinary skill in the art would have been motivated to use the surfactant of Yasuda to prepare an oil-in-water dispersion (and not a dispersion of solid particles in a binder) of a polyisocyanate (and not a polyurethane resin) and at the same time block the isocyanate functions of the polyisocyanate, in a one step emulsion-and-blocking reaction to arrive at the presently claimed invention. In particular, as pointed out above, Tirpak specifically defines a multi-step process. Furthermore, it would not even be possible to combine the teachings of Yasuda and Tirpak to arrive at the presently claimed invention because in Yasuda the continuous phase is the oily phase and in Tirpak the continuous phase is the aqueous phase.

For at least these reasons, Applicants submit that the subject matter of these claims is also patentably distinguished over the prior art.

Finally with respect to the subject matter of claims 48-60, Applicants provide the following remarks.

The scope of the composition claims presented above define the content of water in the emulsion to not more than 50% by mass. See, for example, claim 155. In stark contrast, Tirpak specifies a range of solids content, for the polyisocyanate dispersions, of about 2 to 50 weight %, i.e., a water content of at most 50 to 95 weight %. See Tirpak at column 4, lines 57-59.

Furthermore, Tirpak discloses that a coreactant can be added at the same time as the blocking agent without modifying the properties of the resulting compositions as compared with the addition of the coreactant subsequent to the addition of the blocking agent. See,

for example, Examples 2 and 3, the conclusion in column 8, lines 62-68 and Comparative Example 4.

Additionally, Yasuda discloses a phosphorus-containing compound as a "polyisocyanate emulsifier." Applicants respectfully submit that this would not assist one of ordinary skill in the art in adapting the Tirpak process to obtain the compositions of the presently claimed invention, which have a low content of water together with a high content of blocked polyisocyanate functions.

Thus, the novel and non-obvious compositions of the present invention prepared in a one-step emulsion-and-blocking reaction, have a higher content of blocked isocyanate functions and a lower content of water than the compositions of Tirpak. Also, the claimed compositions present greater stability with respect to their high solid content and relatively low viscosity. Applicants respectfully submit that none of these characteristics are disclosed or fairly suggested by Tirpak or Yasuda, either alone or in combination.

From the foregoing, Applicants respectfully request prompt and favorable examination on the merits.

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If there are any questions concerning this paper or the application in general, Applicants invite the Examiner to telephone the undersigned at the Examiner's earliest convenience.

Respectfully submitted,

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